

Claims

1. A method (200, 300) of downloading software to a software definable radio (105), the method characterised
5 by the steps of:
determining (305) one or more configuration
profile changes of said software definable radio (105);
downloading (320, 340) software automatically to
an intermediate communication unit, in response to said
10 determination; and
re-configuring said software definable radio
(105), by said intermediate communication unit (120),
wherein said configuration profile change is based on a
change to one or more of the following:
15 (i) A service required by said software definable
radio (105),
(ii) A software definable radio user profile,
(iii) A location of said software definable radio
(105),
20 (iv) Software Definable Radio terminal's
capabilities, and/or
(v) Available networks to the Software Definable
Radio.
- 25 2. A method (200, 300) of downloading software to a
software definable radio according to Claim 1, the method
further characterised by the steps of:
determining (330), by an intermediate
communication unit (120), a number of communication links
30 for downloading said software;
selecting at least one of said number of
communication links;

downloading (340) software to an intermediate communication unit (120) in response to said step of selecting; and

re-configuring said software definable radio
5 (105), by said intermediate communication unit (120),
using said downloaded software.

3. The method (200, 300) of downloading software to a software definable radio (105) according to Claim 1 or
10 Claim 2, wherein the method is further characterised by the steps of:

accessing a remote communication network (160) in order to provide the selected downloadable software; and
synchronising said software definable radio (105)
15 to said remote communication network (160) in order to select and download software.

4. The method (200, 300) of downloading software to a software definable radio (105) according to Claim 1 or
20 Claim 2, wherein the method is further characterised by the step of:

providing a user of said software definable radio (105) and/or the intermediate communication unit (120) with the ability to select one or more communication
25 links to download said software.

5. The method (200, 300) of downloading software to a software definable radio (105) according to Claim 1 or Claim 2, wherein said communication link operates in
30 accordance with an IPv6 and/or IPv4 specification.

6. The method (200, 300) of downloading software to a software definable radio (105) according to Claim 1 or

Claim 2, wherein the method is further characterised by the preceding step of:

mapping, in response to said determination (305) of one or more configuration profile change(s), said
5 change(s) to a locally stored database to provide reconfiguration software to said software definable radio (105).

7. A software definable radio (105) adapted to
10 perform the steps according to Claim 1.

8. A communication unit (120) located between a software definable radio (150) and a network (160) that contains software to be automatically downloaded to said
15 software definable radio (105) the communication unit (120) adapted to perform the steps according to Claim 1.

9. A communication unit (120) located between a software definable radio (150) and one or more remote
20 information databases (165) that contains software to be downloaded to said software definable radio (105), the communication unit characterised by:

one or more mapping databases (150) storing configuration profile mapping information of said
25 software definable radio relating to one or more remote information databases (165);

a transport module (145), operably coupled to said one or more mapping databases (150) to facilitate communication between said communication unit (120) and
30 said one or more remote information databases (165), and

a controller (130), operably coupled to said one or more mapping databases (150) and said transport module (145), to automatically request and receive downloadable

software to said communication unit (120) for forwarding to said software definable radio (105).

10. The communication unit (120) according to Claim 5 9, the communication unit further characterised by said transport module supporting several network communication links for downloading software features and/or functions to said software definable radio using one or more of said several network communication links.

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11. The communication unit (120) according to Claim 9 or Claim 10, the communication unit further characterised by said transport module (145) supporting TCP/IP (v4 or v6) suite of application protocols.

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12. The communication unit (120) according to Claim 10, wherein said controller selects automatically said one or more communication links based on said configuration profile change.

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13. The communication unit (120) according to Claim 10, wherein said controller is arranged to communicate communication link options to a user of said software definable radio to enable said user to select one or more 25 of said several network communication links.

14. The communication unit (120) according to Claim 9 or Claim 10, wherein said controller is arranged to receive configuration profile information from a user of 30 the software definable radio (105).

15. The communication unit (120) according to Claim 9 or Claim 10, wherein said controller (130) includes a

filtering mechanism to generate a user profile based on determined operational requirements or habits of said user of said software definable radio (105).

5 16. The communication unit (120) according to Claim 9 or Claim 10, the communication unit (120) further characterised by:

an application programmable interface (125),
operably coupled to said controller (130) and capable of
10 operable coupling to said software definable radio (105),
to upload software to said software definable radio (105)
from said communication unit (120).

17. The communication unit (120) according to Claim 9
15 or Claim 10, the communication unit (120) further characterised by a first one of said databases (150) being a mapping database to enable said communication unit (120), in response to determining one or more
configuration profile change(s), to map said one or more
20 change(s) to a second locally stored database to provide reconfiguration software to said software definable radio (105).

18. The communication unit (120) according to Claim 9
25 or Claim 10, the communication unit (120) further characterised by said configuration profile change including one or more of the following changes:

- (i) A service required by said software definable radio (105),
- 30 (ii) A software definable radio user profile,
- (iii) A location of said software definable radio (105),

(iv) Software Definable Radio terminal's capabilities, and/or

(v) Available networks to the Software Definable Radio.

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19. The method (200, 300) of downloading software to a software definable radio according to Claim 1 or a communication unit (120) according to Claim 9 or Claim 10, wherein the software definable radio (105) configures
10 an intermediate communication unit (120) with one or more of the following items of information:

- (i) One or more SDR configuration profiles, for example a user, service, terminal and/or network profiles;
- 15 (ii) Location of said software definable radio;
- (iii) Parameters or features of the transport module;
- (iv) A request for a new air interface protocol stack, or new or additional software applications;
- (v) A request that the communication unit (120) re-
20 configures one or more operational parameters of the software definable radio (105);
- (vi) An ability to be notified of an event occurring in the communication unit; and
- (vii) A time schedule for desired downloads.

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20. The method (200, 300) of downloading software to a software definable radio according to Claim 1 or a communication unit (120) according to Claim 9 or Claim 10, wherein the software downloaded by said software
30 definable radio includes radio access technology capabilities, enhanced features or new services.

21. A storage medium (135) storing processor-implementable instructions for controlling a processor to carry out the method according to Claim 1.

5 22. A distributed software definable radio re-configuration management mechanism according to the method steps of Claim 1 or incorporating the communication unit according to Claim 9 or Claim 10.

10 23. A distributed software definable radio re-configuration management mechanism comprising:
a software definable radio (105); and
a communication network (160) having a number of
databases (165, 168) storing software applicable to said
15 software definable radio (105);
wherein said distributed software definable radio re-configuration management mechanism is characterised by:
an intermediary device (120), operably coupled to
said software definable radio and comprising memory (135)
20 for storing software required by said software definable
radio (105), for example obtained from said network
(160), such that said software required by said software
definable radio is distributed between said intermediary
device and said one or more remote information databases
25 (165, 168) in said communication network (160).

24. A communication system comprising a communication unit according to Claim 9 or Claim 10 or adapted to facilitate the steps of Claim 1.

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